

OBSERVATIONS ON FLIES OF THE FAMILY MILICHIIDAE CLEANING *ARANEUS* AND *NEPHILA* SPIDERS

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An interesting association between spiders and flies was observed in 1972/1973 at Guildford, Western Australia. The spiders were *Aranus transmarinus* Keyserling, 1865, family Araneidae, sometimes known as "Garden Spiders", and *Nephila* sp., family Araneidae, known as Golden Orb Weavers. The flies were identified by David McAlpine of the Australian Museum, as belonging to the genus *Desmometopa*, family Milichiidae. No species identification has yet been made.

The observations began at Guildford Grammar School in February 1972, when a number of small flies were seen wandering over the webs of *A. transmarinus*, and congregating on the spiders' prey of bees and cicadas. It was noted that the flies, when moving over the web, used the radial threads for walking and flew over the circular, sticky sections. This seemed to indicate a long familiarity with this type of environment.

The flies were also observed congregating on the spiders, mainly in and around their mouth and anal regions. It was noted that the insects were actually feeding, and at the same time appeared to be acting as cleaners. As a result of feeding on bees the spiders had become wet and sticky around their chelicerae and mouths, this seemed to attract the flies to these places. To "help" the cleaning operation, the spiders spread their chelicerae, thus allowing the flies to feed actively all over the bases, fangs and mouth.

The spiders defaecated at frequent intervals and when this occurred several flies would move and feed at the anal opening. The number of flies in this region were never as great as around the chelicerae and mouth.

In March 1973 two large female Golden Orb Weavers, which one of the students had collected on the coast at Triggs, were released in the school grounds. These spiders soon began trapping cicadas and bees in their webs and feeding on them. The "cleaning" flies immediately arrived and their behaviour was the same as for *A. transmarinus*.

In 1974 I commenced observations at Cottesloe where *A. transmarinus* and the "cleaning" flies have been active.

During the observations none of the spiders made any attempt to get rid of the flies; in fact, they went as far as to actively co-operate with them in making the cleaning easier by opening their chelicerae. This behaviour seems to indicate a long term association.

Bristowe (1941) has interesting examples of intimate associations by small flies on spiders but "the reason for their presence in such an unusual situation" puzzled him. He quotes a case where an observer noted a small fly crawling over the palps and "mouth" of *Nephila maculata*. He also records a sighting of Milichiid flies, *Desmometopa sordida* Fall., sharing a snared hive bee with a spider, probably *Thomisus annustus* Walek. Another fly, *Microphorus crassipes* Macq., family Empididae, has been recorded as feeding on prey trapped in spider webs (Laurence, 1948).

The present observation is, as far as I know, the first of flies actively feeding on material present on living spiders.

REFERENCES

- BRISTOWE, W. S. 1941. *The Comity of Spiders*. Vol. 2: 368-369. Ray Society, London.
- LAURENCE, B. R. 1948. Observations on *Microphorus crassipes* Macq. (Diptera, Empididae). *Ent. Mon. Mag.*, 84: 282-283.